

REMARKS

Reconsideration and allowance of the present application are respectfully requested. Claims 11-18 and 20-26 remain pending in the application. Claims 1-10 were previously canceled. By the foregoing amendment, claim 19 has been canceled and new claim 27 has been added.

In numbered paragraph 2 on page 2 of the Office Action, Claims 12-18 and 26 are rejected under 35 U.S.C. §112, second paragraph as being indefinite. The Examiner appears to object to the format of these claims because the claims allegedly fail to "particularly point out a manipulative step". This objection is considered a matter of form and not scope. To address the Examiner's concerns, claims 12-18 have been reformatted to clarify the function recited. Withdrawal of the objection to the method claims is therefore respectfully requested.

In numbered paragraph 3 of the Office Action, claims 19-25 are rejected are 35 U.S.C. §112, second paragraph, as being incomplete. More particularly, the Examiner asserts that the claims fail to recite "positive structural elements to permit a 'continuous product flow established [from] the inlet as far as the outlet such that the flow of the primary product can be regulated in a dosed fashion at the outlet'." Again, this objection is respectfully traversed, as claim 19 is considered to recite all structural elements for performing the recited functions. However, to clarify that the mixing tool is used in the process of establishing continuous product flow from the inlet to the outlet, claim 19 has been canceled, and a new claim 27 has been presented. Because claim 27 has been

presented to clarify aspects of the combination recited in claim 19, without altering the scope of this claim, withdrawal of the objection to claims 19-25 is requested.

In numbered paragraph 5 on page 3 of the Office Action, claims 19, 22 and 24 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 1,653,281 (Hess). In numbered paragraph 7, claims 11-18 and 26 are rejected under 35 U.S.C. §103 as being unpatentable over the Hess patent in view of U.S. Patent No. 4,125,063 (Jelks). Although Applicants note with appreciation the indication in numbered paragraph 8 that claims 20-21, 23 and 25 contain allowable subject matter, independent claims 11 and 27 are considered to afford Applicants a scope of protection to which they are entitled in light of the documents relied upon by the Examiner.

The present invention is directed to a method and apparatus for driving a vertical mixer, such as the mixer 1 in Applicant's Figure 1. According to the exemplary Figure 1 embodiment, a vertical mixer 1 includes rotatable mixing tools 4 provided in a housing 6 having an inlet 7 for receiving a product to be mixed, an outlet 8, and a drive 13 for driving a hollow shaft 2 to which the mixing tools 4 are attached. As described in accordance with the exemplary Figure 1 embodiment, the vertical mixer is completely filled in an operating state, and a shear field builds up in the product by the mixing tool. For example, as described in the last paragraph on specification page 2, an inner area of the mixer is completely filled. The mixing product enters the region of the mixing tools and is set in rotary motion and pressed towards the inner wall of the mixer housing. The mixing tools are provided in housing with a configuration for building up a shear field in

the product during such an operating state. The complete filling of the housing, in conjunction with the provision of the mixing tool, thus allow the shear field to occur within the housing. As a result, significant advantages can be realized, such as optimal mixing with minimum energy (see, for example, the last full paragraph on specification page 1).

The foregoing features are broadly encompassed by Applicants' independent claims 11 and 27, and are neither taught nor suggested by the Hess patent considered individually or in combination with the Jelks patent.

Independent claim 27, which has replaced independent claim 19, recites a combination of the features which are neither taught nor suggested by the Hess patent. Claim 27 is directed to a device for driving a vertical mixer which includes, among other features, at least one rotatable mixing tool provided in a housing for building up a shear field in the product during an operating state. Claim 27 also recites at least one outlet for regulating flow of a primary product in a dosed fashion when continuous product flow is established from the inlet to the outlet using the mixing tool. Such features are neither taught nor suggested by the Hess patent.

The Hess patent is directed to a washing and stirring apparatus for coffee beans using an upper tank 10 and a lower tank 11. A stirring mechanism is provided with tanks 10 and 11, and includes a shaft 27. Blades 31 are secured to the shaft 27 within the upper tank 10, each blade being pitched to impart a circulatory and downward movement to the contents of the tank. Blades 32-34 are attached to the shaft 27 within lower tank 11. The blades 32 are pitched to impart a circulatory downward movement to the contents on the

lower part of tank 11. Blades 33 are disposed horizontally to maintain a balance of equality between the upper and lower portion of the contents of the tank 11. Blades 34 are pitched to cause a circulatory and upward movement of the upper portion of the contents of the tank 11. Coffee beans are washed batchwise and lees/shells are separated.

As described at page 2, lines 41 et seq. of the Hess patent, blades 31 in tank 10 press the coffee grains down against the bottom of the tank, and as the lees are partly washed off the coffee grains, the water becomes more dense and moves upwardly. Slides 19 are partly opened occasionally so that dense water may flow out carrying the lees it has dissolved while fresh water is provided to inlet 13. After sufficient time, the slide 15 is partly opened so coffee grains in water flow through outlet 14 into lower tank 11. The partly washed coffee enters lower tank 11 while other lees laden coffee grains are admitted to upper tank 10. In tank 11, impure water entering through trough 25 is led through outlet 26. When the coffee grains in lower tank 11 have been freed of lees, the slide 24 is opened so that coffee grains fall to a conveyer 45.

The Hess patent does not teach or suggest performing a washing/stirring operation using a shear field as presently recited in Applicants' claim 27. The Hess patent is directed to use of outlets 14/15 and 23/24 which are closed during operation, and there is no teaching or suggestion for providing a dosing feature. Moreover the Hess patent is directed to filling the tank 10 with water until the tank is about 1/4 quarter filled (page 2, lines 35-38). Approximately the same amount of coffee grains are supplied (see page 2,

lines 38-41), such that the tank 10, during operation is approximately half full. As such, a shear field as claimed is not generated.

In contrast, exemplary embodiments are directed to use of a rotatable mixing tool for building up a shear field. As already mentioned, the Hess patent at best, discloses use of blades 34 to create an upward movement of the content of tank 11, away from the flow direction established by the blades 32 and 33. As such, the Hess patent fails to teach or suggest establishing a shear field during the operating state. In addition, the Hess patent fails to teach or suggest regulating the flow of a primary product in a dosed fashion when continuous product flow is established from an inlet to an outlet using a mixing tool provided for building up a shear field. Because such features are recited in claim 27 and are neither taught nor suggested by the Hess patent, claim 27 is considered allowable.

Independent method claim 11 which was rejected over a combination of the Hess and Jelks patents is also considered allowable. Claim 11 is directed to a method for driving a vertical mixer which includes, among other features, continuously completely filling the vertical mixer in an operating state, a shear field being built-up in the product by the mixing tool. Claim 11 also recites establishing continuous product flow from the inlet of the product to be mixed as far as the outlet of the product to be mixed. Again, such features are neither taught nor suggested by the Hess patent considered individually or in combination with the Jelks patent.

The Hess patent has already been discussed. This patent fails to teach or suggest a method which involves completely filling a vertical mixer as recited in claim 11. The Hess

patent fails to teach or suggest a shear field being built up in a product by the mixing tool. In addition, the Hess patent fails to teach or suggest establishing continuous product flow from an inlet such that the flow of primary product can be regulated in a dosed fashion at the outlet as recited in claim 11.

The Jelks patent fails to overcome the deficiencies of the Hess patent. The Jelks patent is directed to a continuous digester having a conveyor 42 with a mill 48 and valve 54 at the outlet. An inlet means 18 is provided in a receiving box 16. The lower portion of the receiving box 16 communicates with a second screw feeder 20. Cellulosic matter falls by gravity to screw feeder 20 and is transported by screw member 24 to a mill 22. A reactor 30 is disposed below the mill and includes a housing 32 having a chamber 33. Arm sweeps 38 are secured to a shaft 35 within the chamber 33 to prevent bridging of the cellulosic material. The lower portion of the reaction chamber communicates with a third screw conveyor 42 which feeds a second mill 48 with the discharge contents of the reactor 30. Material is batch processed in the reactor for 30 minutes before being discharged (see column 3, lines 15-18). The material is then discharged through line 52 into a valve 54.

The Jelks patent fails to overcome deficiencies noted above with respect to the Hess patent. For example, this patent does not teach or suggest methods for driving a vertical mixer with at least one rotatable mixing tool wherein the vertical mixer is continuously completely filled in an operating state, and a shear field is built up in the product by the mixing tool. As such, this patent, even when considered in combination with the Hess patent, performs batch processing in reactor 30, and therefore fails to teach or suggest

Applicant's claim 11 combination. In addition, the Jelks patent fails to teach or suggest driving a vertical mixer such that a primary product is fed continuously into the vertical mixer and the flow of the primary product can be regulated in a dosed fashion at the outlet. Again, the Jelks patent even when considered in combination with the Hess patent, therefore, fails to teach or suggest Applicant's claim 11 combination.

Because independent claims 11 and 27 are considered allowable, all of the remaining claims which depend therefrom, are also considered allowable.

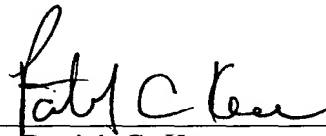
All objections and rejections in the Office Action having been addressed, it is respectfully submitted that the present application is in condition for allowance and a Notice of Allowance is respectfully solicited.

Respectfully submitted,

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